

**REMARKS**

Claims 1-20 were originally filed in the present application.

Claims 1-20 are pending in the present application.

Claims 1-14 were rejected in the July 25, 2006 Office Action.

Claims 15-20 were allowed in the July 25, 2006 Office Action.

Claims 1 and 8 are amended herein.

Claims 2 and 9 are cancelled herein.

Claims 1, 2-8 and 10-20 remain in the present application.

Reconsideration of the claims is respectfully requested.

In Sections 2 and 10 of the July 25, 2006 Office Action, the Examiner indicated that Claims 15-20 are allowable. Applicants thank the Examiner for this determination.

In Sections 4 and 5 of the July 25, 2006 Office Action, the Examiner offered arguments in support of several obviousness rejections. Applicants respectfully traverse these arguments.

In Sections 6 and 7 of the July 25, 2006 Office Action, the Examiner rejected Claims 1, 3-8 and 10-14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,091,733 to *Takagi, et al.* (the "Takagi I reference") in view of U.S. Patent No. 6,272,148 to *Takagi, et al.* (the "Takagi II reference"). Applicants respectfully disagree.

Applicants note that amended independent Claim 1 requires:

For use in communications system coupled to a packet network lacking packet aggregation and fragmentation at intermediate nodes therein, a packet relay for improving bandwidth utilization comprising:

a connection to a wireless link;  
a connection to the packet network; and  
a packet relay controller intercepting traffic between the wireless link and the packet network and re-formatting the intercepted traffic to employ a first maximum transmission unit size for intercepted traffic forwarded to the packet network and a second maximum transmission unit size for intercepted traffic forwarded to the wireless link,  
*wherein the first maximum transmission unit size is larger than the second maximum transmission unit size.* (emphasis added)

Similarly, amended independent Claim 8 requires:

A communications system comprising:  
a wireless communications device employing a wireless link;  
a packet network lacking packet aggregation and fragmentation at intermediate nodes therein; and  
a packet relay for improving bandwidth utilization in communications between the wireless communications device and a final destination within the packet network comprising:  
a connection to the wireless link;  
a connection to the packet network; and  
a packet relay controller intercepting traffic between the wireless link and the packet network and re-formatting the intercepted traffic to employ a first maximum transmission unit size for intercepted traffic forwarded to the packet network and a second maximum transmission unit size for intercepted traffic forwarded to the wireless link,  
*wherein the second maximum transmission unit size is smaller than the first maximum transmission unit size.* (emphasis added)

First, amended Claim 1 clearly distinguishes between the two maximum transmission unit sizes by reciting that the “the first maximum transmission unit size is larger than the second maximum transmission unit size”. There is no teaching, suggestion or motivation within the Takagi I reference or the Takagi II reference of different maximum transmission unit sizes, let alone a first maximum transmission unit size that is *larger* than a second maximum transmission unit size, as required by amended Claim 1 (or a second maximum transmission unit size that is *smaller* than the first maximum transmission unit size, as required by amended Claim 8).

Second, the Examiner apparently suggests that it would be obvious to modify the Takagi II reference to include a wireless interface. Applicants respectfully disagree. Wireless links typically employ a maximum transmission unit size (MTU) that is generally less than the typical MTU used in hard-wired or land line network connections. Moreover, because smaller MTUs would congest network hosts and all intermediate routers, a wireless system (unlike systems that are hard-wired) would require several system updates. These system updates may include, for example, the use of higher processors and lower effective bandwidths. There is no teaching, suggestion or motivation within the Takagi I reference or the Takagi II reference for any solution to these wireless system issues, nor are they even remotely addressed.

Third, the references cited in support of the rejection, whether taken individually or in combination, fail to disclose all elements required by amended Claim 1. For example, the Takagi I reference discloses a system directed to *unidirectional* transfers of data packets from *a server terminal to a client terminal* in an asymmetric access network in which the bandwidth from server terminals to client terminals is much wider than the bandwidth from client terminals to server terminals. The Takagi I reference, column 3, lines 20-65. The Takagi I reference teaches: (1) *receiving* TCP segments having a first size on a network interface; and (2) *outputting* TCP segments having a larger size on to a client interface. *Id.* at column 3, lines 36-46. The Takagi I reference and the Takagi II reference, however, fail to disclose, teach or suggest, for example, transmitting TCP segments *transmitted to the network from the network interface* or any disclosure, teaching or suggestion of the size of such TCP segments *transmitted to the network from the network interface*.

Moreover, there is no suggestion or motivation within the Takagi I reference or the Takagi II reference to combine discrete elements from these references and then *seek out* still other discrete elements as required by Claim 1 and ultimately by its dependents Claims 3-7. Similar arguments hold true for independent Claim 8 and ultimately by its dependents Claims 10-14. Accordingly, Applicants respectfully request the withdrawal of the rejection in its entirety.

In Section 9 of the July 25, 2006 Office Action, the Examiner rejected Claims 1-4, 6-11, 13 and 14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,212,190 to *Mulligan, et al.* (the “Mulligan reference”) in view of “Adaptive Frame Length Control for Improving Wireless Link Throughput, Range and Efficiency” to *Lettieri, et al.* (the “Lettieri reference”). Applicants respectfully disagree.

Applicants note that Claims 2 and 9 have been cancelled herein and therefore the rejection to these claims is now moot. With regards to Claims 1, 3, 4, 6-8, 10, 11, 13 and 14, Applicants note that the Mulligan reference discovers several MTU values during the data transmission between a source and a host. Mulligan reference at column 9, lines 7-12. There is no teaching, suggestion or motivation within the Mulligan reference of discovering and/or using any MTU sizes related to wireless networks. The Mulligan reference, thus, fails to disclose a second maximum transmission unit size *for intercepted traffic forwarded to the wireless link*, as required by independent Claims 1 and 8.

Moreover, the Lettieri reference discloses the impact of media access control (MAC) layer frame lengths (which correspond to the maximum transmission unit (MTU)) transmitted through a

wireless link. The Lettieri reference, p. 564, second column. The Lettieri reference specifically teaches that the correct MTU choice is specific to every wireless hop. *Id.* at p. 565, first column, first full paragraph. The Lettieri reference goes on to specifically state that such systems would require constant user intervention and thus proposes to instead make changes to the data link layer. *Id.* at third and fourth full paragraphs. The Lettieri reference accordingly proposes inserting below the IP layer a fragmentation and reassembly entity that fragments IP packets at the transmitter according to the current channel conditions and reassembles them at the receiver. *Id.* at fourth full paragraph. Thus, the Lettieri reference fails to teach a packet relay controller that re-formats the intercepted traffic between a wireless link and a packet network to employ *a first maximum transmission unit size for intercepted traffic forwarded to the packet network and a second maximum transmission unit size for intercepted traffic forwarded to the wireless link*, as required by amended Claim 1.

Applicants also note that even if the Lettieri reference taught discovery of a proper MTU value at each intermediate node, Claim 1 of the present application specifically states “[f]or use in a communication system coupled to a packet network lacking packet aggregation and fragmentation at intermediate nodes therein[.]”

Accordingly, neither the Mulligan reference or the Lettieri reference, taken individually or in combination, teaches or makes obvious, for example, a packet relay controller intercepting traffic between the wireless link and the packet network and re-formatting the intercepted traffic to employ *a first maximum transmission unit size for intercepted traffic forwarded to the packet network and a second maximum transmission unit size for intercepted traffic forwarded to the wireless link*, as

required by amended Claims 1 and 8. Moreover, there is no suggestion or motivation within the Mulligan reference or the Lettieri reference to prompt one of ordinary skill to selectively and non-inventively combine and then seek *out* still other discrete elements as also required by Claims 1 and 8. Accordingly, Applicants respectfully request favorable reconsideration of the §103 rejection.

**SUMMARY**

For the reasons given above, the Applicants respectfully request reconsideration and allowance of the pending claims and that this application be passed to issue. If any outstanding issues remain, or if the Examiner has any further suggestions for expediting allowance of this application, the Applicants respectfully invite the Examiner to contact the undersigned at the telephone number indicated below or at *jmockler@munckbutrus.com*.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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